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Buyer-Supplier Interactions for Sustainability and the Relational View: a Literature Review

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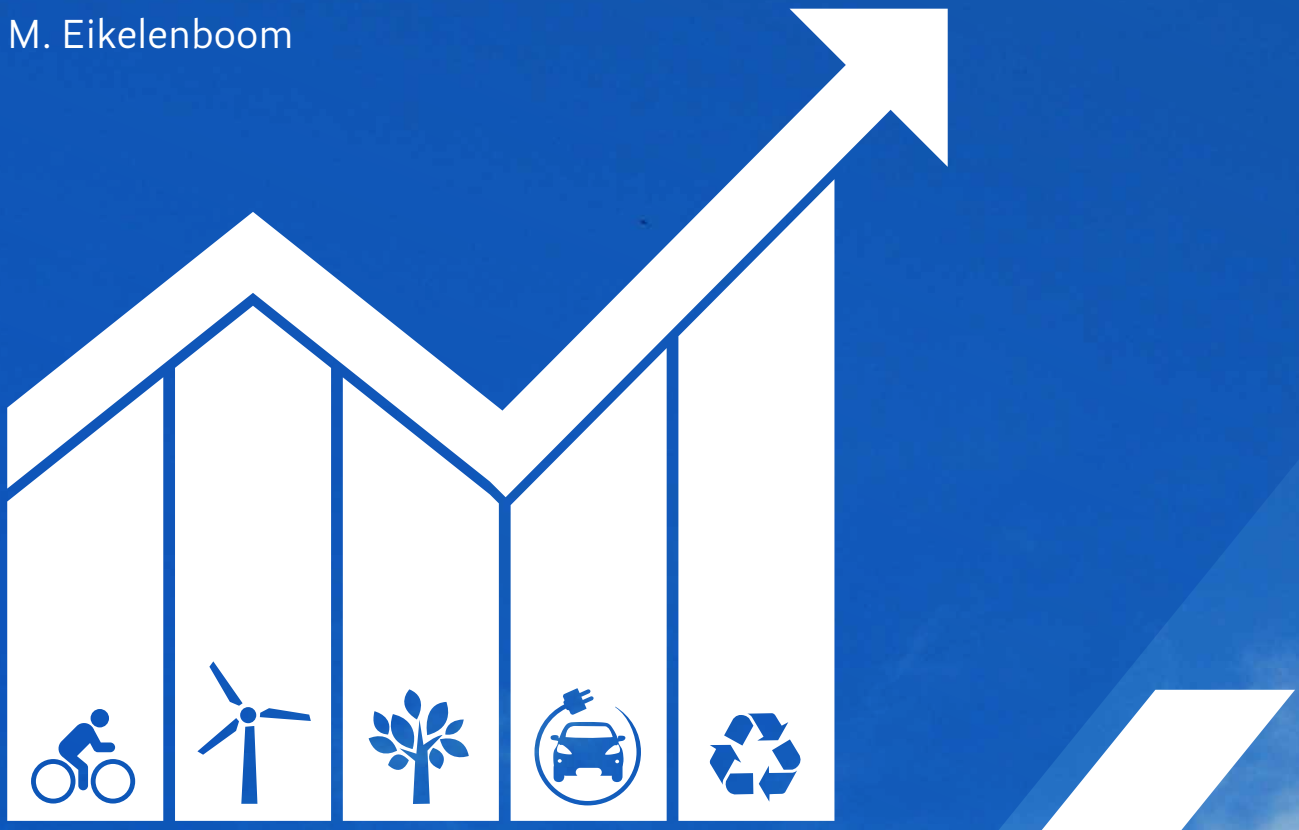

Working paper series
1703-CSE

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Working paper series

Centre for Sustainable Entrepreneurship

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Design (cover): David-Imre Kanselaar

BUYER-SUPPLIER INTERACTIONS FOR SUSTAINABILITY AND THE RELATIONAL VIEW: A LITERATURE REVIEW

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FEBRUARY 2017

ABSTRACT

This paper reviews 21 academic papers which adopt the relational view and focus on interactions between buyers and suppliers regarding sustainability issues. The relational view proposes that by cooperating both buyers and suppliers can generate substantial relational rents. However, in the literature on buyer-supplier interactions regarding sustainability mixed results about the ability to achieve relational rents have been found. The aim of this literature review is to understand these mixed results and to identify different concepts, definitions and research methods. We conclude that the current literature inconsistently adopts the concepts of relational rents and inter-firm linkages and moderators are often left out of the models. These findings enable us to propose a new conceptual model and to establish routes for future research.

KEYWORDS: Buyer-supplier interactions, sustainability, relational view

INTRODUCTION

Being both socially and environmentally responsible is important for multinational companies. A difficult challenge in achieving this responsibility is that its boundaries often extend beyond the ownership and direct control of the multinational (Gimenez & Tachizawa, 2012). Therefore, a high level of environmental or social performance by the MNE itself can be destroyed by poor environmental and social management of its suppliers (Testa & Iraldo, 2010). For example, in 2014 the electronics company Samsung was accused of inappropriate social practices because one of its Chinese suppliers hired children to meet production targets (The Guardian, 2014). Furthermore, in 2016 major outdoor brands like the North Face and Mammut were accused of poor commitment to the natural environmental due to the use of toxic chemicals in their production chains (The Guardian, 2016). This indicates that multinationals have to work together with their suppliers in order to increase environmental and social performance (Simpson et al., 2007).

Cooperation with suppliers can take multiple forms ranging from simple assessment to intensive collaboration (Giminez & Tachizawa, 2012). A small but growing body of research has explored the influence of a customer's relationship with its suppliers in regard to the extension of sustainability-based goals. In this growing body of research, multiple articles have adopted the relational view (Dyer and Singh, 1998) in order to argue that interactions between buyers and suppliers on environmental or social issues are a source of relational rents. Not only environmental and social performances are expected to improve, but also economic performance, operational performance and competitive advantage increase due to interactions between buyers and suppliers on sustainability issues. Therefore, cooperation with suppliers is seen as a common best practice related to better organizational outcomes (Pagell & Wu, 2009). However, while positive effects are anticipated in the relational view, mixed results have been found; where some articles find evidence for extensive performance benefits for the buying firm (Lee et al. 2015), others only find support for an improvement of environmental performance of the supplier (Testa & Iraldo, 2010). Given these mixed results, it is appropriate to review and analyze the existing literature which will enable us to discuss

concepts, definitions, conceptual models, research methods and findings in the field.

The aim of this paper is to review the studies that adopt the lenses of the relational view and have investigated the relationship between buyer-supplier interactions on sustainability issues and their effects on performance outcomes. Furthermore, this paper will highlight the mixed results found in the articles and analyze the causes for these mixed results. Why do some buyer-supplier interactions seem to offer more relational benefits than others and why are the predictions of the relational view not confirmed? Former research has indicated that the mixed results might be caused by differences in operationalization of the variables and the effects of moderators (Carter, 2005). However, this paper argues that mixed results might also be caused by an inconsistent adoption of the relational view, especially regarding the concepts relational rents and inter-firm linkages. Furthermore, this research will indicate when and which interactions lead to substantial benefits by establishing an integrated model. Finally, important gaps in the literature and directions for future research will be provided. To the best of my knowledge there is no research yet that analyzes the findings of previous articles on this topic and offers and integrated model. Therefore, this article will offer some important academic and managerial implications. Regarding academic implications, this article will analyze relevant articles, explain their mixed results, highlight the potential of the relational view, propose an integrated model and provide important gaps in the literature. Regarding managerial implications, this article will provide managers with insights into which and when buyer-supplier interactions will lead to substantial performance outcomes. Managers should keep these factors in mind when relationships with suppliers on social and environmental issues are established.

This paper will be developed as follows. Firstly, I will provide an overview of the methodology adopted in this paper. Thereafter, an overview of the framework of analysis, the relational view, and its relevance to the topic will be provided. Thereafter, the articles will be analyzed on several characteristics in order to explain the mixed results; the concept relational rents, the types and influence of interactions, the effects of possible mediating and

moderating variables. Thereafter an integrated model will be established. Finally, I will provide a conclusion, directions for future research and limitations.

METHOD

In order to answer the questions raised in the introduction, several papers were analyzed. As the amount of research on green and social supply chain management is rapidly increasing, a selection had to be made. Firstly, in line with review methods in the field (Gimenez & Tachizawa, 2012), I specified keywords in order to find relevant articles. The following keywords were adopted to identify a broad sample of relevant studies:

1. A keyword indicating the presence of a social or environmental perspective, for example green, environmental, social or sustainable.
2. A keyword indicating the existence of an interaction or relationship between the buyer and the supplier , for example supply chain relationship or buyer-supplier interaction.
3. A keyword indicating the adoption of the relational view.

All possible combinations of these keywords were inserted in different search engines like Google Scholar and JSTOR in order to include different journals (Webster & Watson, 2002). Articles that contain these keywords and were published in major academic journals from 2000 onwards were included for further analysis. However, this resulted in the identification of only 12 relevant articles, which might be due the fact that only a few articles explicitly mention the relational view. Therefore, this initial approach was combined with another method to enlarge the set of relevant articles. This approach involved the analysis of multiple literature reviews that investigate green or social supply chain interactions. Two highly relevant literature reviews, Gimenez and Tachizawa (2012) and Sarkis et al. (2010), were analyzed. Sarkis et al. (2010) identify articles on buyer-supplier relationships for social/environmental issues and indicate which theories these articles adopt. While the authors did not specifically address the relational view, articles that adopted the resource-based view and focused on inter-organizational interactions were selected for further

analysis. Gimenez and Tachizawa (2012) identify articles that investigate the extension of sustainability in supply chains. These articles were all adopted for further analysis. Combining these two approaches led to the identification of 56 relevant articles.

After the initial identification stage, I investigated if the articles were appropriate for answering the research questions. This was investigated by carefully analyzing the abstracts of the articles in order to find out if the papers fitted with the research objectives. Therefore, articles should address the relationship between the buyer and the supplier regarding social or environmental issues and the outcomes of this relationship, adopting lenses from the relational view. This second analysis led to the identification of 31 articles. However, some difficulties arose as only a few articles explicitly mentioned their use of the relational view. Therefore, another analysis was done to ensure that the articles actually adopted perspectives from the relational view in order to formulate their propositions or hypotheses. All 31 papers were examined in greater detail, placing emphasis on the hypotheses, the considered variables and the adopted lenses of the relational view, e.g. the generation of relational rents by interactions. For example, Cheng (2011) indicates that 'Green supply chain collaborations are formed to achieve a sustainable competitive advantage for all parties involved'. Articles that did not satisfy these conditions were excluded, which resulted in the identification of 20 articles for further analysis. This is only a small sample of articles, however after this extensive analysis we can make sure that these articles are most relevant for this research. Some other articles could be included that focus only on green or social relationships between buyers and suppliers and not on the outcomes of this relationship. While these papers might offer interesting insights they are outside the scope of this paper.

THE RELATIONAL VIEW

Before analyzing the articles, I will discuss the relational view as it forms the framework of analysis for this paper. In this section, important aspects of the relational view will be discussed which will be used to analyze the articles. Furthermore, this section will explain the relevance of the relational view for the topic of buyer-supplier interactions on

social and environmental issues.

The relational view was developed by Dyer and Singh (1998) as an extension of the resource-based view. The theory shifts the unit of analysis from the firm level to the dyadic or network level and highlights that competitive advantages can cross firm-boundaries. This is due to the fact that interfirm linkages can be a source of relational rents in a pair or network of firms. Dyer and Singh do not elaborately explain what these interfirm linkages are, however we can assume a broad perspective in which interfirm linkages compromise any form of linkage between two or more parties that create any interaction or relationship between them. Relational rents are defined as 'supernormal profits jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners'. This indicates that, by collaborating, firms generate mutual benefits that they could not have achieved by working independently. Furthermore, it is important to note that relational rents are gains for all parties involved.

Interfirm linkages must include certain characteristics in order to enable the creation of relational rents. Dyer and Singh argue that arm's-length market relationships will not generate relational rents as they are not rare and easy to imitate. Therefore, the authors specify four 'enablers' of rents. First of all, the relationship must involve investments in relation-specific assets, which creates assets that are specialized in conjunction with the assets of an alliance partner. Secondly, inter-firm knowledge sharing is important in order to generate relational rents . Thirdly, the authors specify the necessity of complementary resource endowments, which means that the resources of alliance partners collectively generate greater rents than they would have generated when each partner individually employs its own resources. Finally, a relationship should involve effective governance which causes the transaction costs of the relationship to be lower than that of other relationships. To conclude, Dyer and Sing argue that interfirm linkages should include relation-specific assets, knowledge sharing routines, complementary resource endowments and effective governance in order to generate relational rents.

The relational view and buyer-supplier interactions on environmental and social issues

The adoption of the relational view in the study of buyer-supplier interactions and environmental and/or social issues can offer interesting insights. Previous studies have already successfully applied the relational view to study traditional buyer-supplier relationships, like strategic collaboration (Chen & Paulraj, 2004). As seen in the introduction, large multinationals also increasingly interact with their suppliers in order to assess environmental and social issues. This is in line with research that suggests that improving a firm's environmental performance increasingly requires coordinated effort between exchange partners in a supply chain rather than firms acting independently (Canning & Lloyd, 2001).

In this specific relationship, interfirm linkages can be seen as all practices related to social or environmental issues that establish an interaction or relationship between the buyer and the supplier. This relationship or interaction can involve multiple suppliers and buyers. Furthermore, the interaction does not necessarily have to compromise intensive collaboration between both parties as also practices like the evaluation of a supplier's environmental capabilities establish interactions between buyers and suppliers (Sancha et al, 2012). The linkages between buyers and suppliers can therefore be seen as interactions or relationships that offer the possibility to generate relational rents. These relational rents can compromise a variety of aspects like increased trust, sustainable performance outcomes, economic performance outcomes or even competitive advantage. However, in order to generate relational rents we also expect that the interactions have to include some factors that distinguish them from arm's length relationships. For example, Sancha et al. (2012) indicate that an exchange relationship is apparent when the buying firm implements a social development program at the supplier. This relationship can in turn lead to relational rents due to the valuable knowledge shared by the buying firm through trainings and visits to the supplier. To conclude, we can argue in line with the relational view that interactions on social and environmental issues between buyers and suppliers can potentially result in substantial relational rents.

ANALYSIS

General findings

This research provides an analysis of 20 selected papers by adopting the relational view as a framework of analysis. Therefore, emphasis will be placed on interactions between buyers and suppliers, the relational rents generated with these interactions and possible factors that facilitate these rents; characteristics of the interaction, mediators, or moderators. In Appendix A general features of the articles are summarized: theory (implicit or explicit use of the relational view), scope (environmental, social or both), type of interaction, perspective (buyer or supplier), method, and finally the main findings of the paper. Appendix B is related to the conceptual ideas of the papers, indicating independent, dependent, moderator, mediator or other variables. Some interesting aspects are highlighted in these tables.

As we might have expected from the relational view, all studies anticipate a positive relation between an interaction among buyers and suppliers for social or environmental issues and a certain relational rent. However, the articles adopt many different types of buyer-supplier interactions and relational rents. While some articles focus on extensive collaboration, like supplier-customer relationships for environmental change (Canning & Lloyd, 2001), others are more focused on practices from the buyer that are aimed at improving poor environmental or social performance of the buyer, for example green supply chain management (Lee & Klassen, 2008). Furthermore, the articles focus on different types of relational rents, ranging from improved environmental performance of the supplier to improved competitive advantage. Despite this heterogeneity in the foundations of the articles, we can derive some generalized conclusions.

First of all, the initial analysis indicates that the papers generate mixed findings. While, in line with the relational view, most papers seem to confirm a positive relationship between buyer-supplier interactions for environmental or social issues and relational rents, some do not find a positive relationship, an indirect relationship or even a negative relationship. Two important mixed results are worthwhile mentioning. First, the effects of

interactions on environmental or social performance are according to some authors only indirect while others also find a direct relationship. Regarding sustainability performance of suppliers, Simpson et al. (2007) find an indirect effect (via relationship characteristics), Lee (2008) and Sancha et al. (2015) find a direct effect, and Simpson and Power (2005) find both a direct and indirect effect (via lean performance). Regarding environmental performance of the buyer, Blome et al. (2014) find only an indirect effect (via sustainable production), while multiple others find only a direct effect (Albino et al., 2012; Lee et al., 2015; Testa & Iraldo, 2010; Vachon & Klassen, 2008). Second, not all authors find a positive effect of interactions on the operational or economic performance of the buyer. For example, Vachon and Klassen (2008) indicate that environmental collaboration has a negative effect on the economic performance of the buying company. These mixed findings indicate that there might be important moderators present in the relationships.

We can conclude that, even when this research only included articles that adopt the ideas of the relational view, some still find conclusions that seem to be in direct contrast with this view. This might be caused be flaws in the relational view but also by an incorrect use of the relational view in the articles. In order to investigate the nature of the mixed findings, the next section will analyze how relational rents and interfirm linkages are defined in the articles and if this is in line with the ideas of the relational view.

Relational Rents an Inter-firm Linkages

According to the relational view interactions can result in relational rents, which are gains for both the supplier and the buyer. However, contrasting results are found, for example Testa and Iraldo (2010) find a negative effect on competitive advantage, while Lee et al. (2015) find a positive effect. This section will try to explain these mixed findings by identifying which types of relational rents are adopted in the articles and if the definition and operationalization of these relational rents is in line with the relational view. Appendix C provides a summary of the relational rents the different articles address.

The articles seems to appropriately adopt the idea of relational rents in their articles as they all focus on some gains, mostly performance outcomes, for the buyer and the

supplier. It seems clear that interactions do increase environmental or social performance of both the buyer and the supplier as most articles focus on these types of relational rents and find a positive relationship, however some find only an indirect effect while others also indicate a direct effect. These conflicting results cannot be explained by the measures for environmental/social performance, as these are highly similar. For example, Blome et al. (2014), who find only an indirect relationship, adopt similar same self-reported questions on environmental performance as Testa and Iraldo (2010) and Lee et al. (2015); e.g. 'We improve the environmental-friendliness of our production' (Blome et al., 2014), 'Our facility has experienced a change in environmental impacts per unit of output' (Testa & Iraldo, 2010), or 'We have faced a reduction or air emission, solid wastes or water waste (Lee et al., 2015).

However, far less articles focus on the generation of other rents like operational or economic performance. Furthermore, these articles generate mixed results, which might be explained by differences in operationalization. A positive effect on operational or manufacturing performance (Sancha et al., 2015; Vachon and Klassen, 2008), market performance (Blome et al., 2014) and competitive advantage (Lee et al., 2015) is found, while also a negative or no effect on costs (Vachon and Klassen, 2008), economic performance (Sancha et al., 2015) and competitive advantage (Testa & Iraldo, 2010) is indicated. This might be due to the fact that some authors refer to economic indicators, like change in sales or EBIT, while others refer to operational indicators, like quality, delivery and costs. It seems that these operational indicators are positively affected while the economic indicators are negatively affected. Operational performance (Sancha et al., 2015), manufacturing performance (Vachon & Klassen, 2008), market performance (Blome et al. 2014) and competitive advantage (Lee et al., 2015) all have a positive effect and are all measured by operating indicators. On the other hand, economic performance (Sancha et al., 2015) and competitive advantage (Testa & Iraldo) have a negative effect and are measured by economic indicators. It cannot be indicated if this is also the case for supplier operational and economic performance as only one article focusses on the operational performance of the supplier,

however this article does find a positive relationship. This reasoning does still not explain why some articles find a positive effect on costs (Lee et al., 2015; Sancha et al., 2015) while others find a negative effect on costs (Vachon & Klassen, 2008).

To conclude, relational rents in environmental and social interactions seem to be mostly generated in the form of an increase in environmental or social performance of the buyer and the supplier. The mixed results of the papers can be partly explained by differences in operationalization, where operational indicators are positively affected, while economic indicators are negatively affected. However, some mixed results remain unexplained and the indication of negative effects on economic performance is in direct contrast with the relational view. As all articles seem to adopt performance outcomes that are in line with the concept of relational rents, the mixed results cannot be explained by an inappropriate adoption of the relational view. However, it has to be noted that most articles do not focus on 'real' relational rents as they only investigate gains for the supplier or gains for the buyer. In our sample, only two articles include and find gains for the buyer and the supplier simultaneously (Ramanathan et al., 2014; Touboulic & Walker, 2015). Therefore, the reviewed papers offer limited evidence for the generation of relational rents and are not able to identify the division of rents between buyers and suppliers.

As the mixed results are not fully explained by differences in operationalization, I also look at the consistency of the adoption of the concept inter-firm linkages. According to the relational view inter-firm linkages will lead to the generation of relational rents. However, as seen before, a negative effect of buyer-supplier interactions on relational rents has been found. I will first distinguish between the different types of buyer-supplier interactions that are adopted in the papers. Thereafter, I will investigate if these definitions are in line with the concept of inter-firm linkages as conceptualized in the relational view.

Different interactions. As specified above, inter-firm linkages in the sustainable supply chain context can be seen as all practices related to social or environmental issues that establish an interaction or relationship between the buyer and the supplier. In all the articles some kind of relationship or interaction is investigated, however multiple types of

interactions are addressed. This is not an unexpected phenomenon, as former research on general buyer-supplier relationships suggests that interactions between buyers and suppliers can take place at different levels. Arroyo-Lopez & and de Boer (2012) indicate that a large variety of actions can be adopted by the buyer to improve suppliers' performance, ranging from low involvement activities to much more elaborate and resource demanding activities. In their research low involvement activities are practices like assessing, monitoring, providing feedback or incentives to suppliers. On the other hand, high involvement activities include providing trainings, giving technical assistance or developing joint projects. Gimenez and Tachizawa (2012) indicate that also in environmental or social relationships different levels of interaction exist. The authors classify between assessment, any activity related to evaluating suppliers' sustainable performance, and collaboration, working directly with suppliers on sustainability issues, providing them with training, support or other activities. In line with this research, the papers reviewed in this article also investigate different levels of interaction. When indicating which levels of interaction the articles investigate, emphasis was placed on the definition of the interaction for case study research and on the measurement of the interaction for survey research. A summary of these findings is provided in appendix D.

Several articles focus solely on low level interactions by measuring only environmental/social assessments or requirements. An interesting example is the paper of Testa & Iraldo (2010). The authors argue that increased cooperation and extensive collaboration between partners, high-level interaction, leads to an improved competitive advantage. However, regarding their measurement only low-level interactions are investigated by asking respondents two questions; 'Do you regularly assesses the environmental performance of your suppliers?' and 'Do you require your suppliers to undertake environmental measures?'.

On the other hand, some articles only include high level interactions between the buyer and the supplier by measuring the existence of mutual environmental/social goals, joint work on environmental or social issues, extensive trainings and joint decision making on environmental/social topics. For example, Vachon & Klassen (2008) focus on

environmental collaboration which is defined as the direct involvement of an organization with its suppliers and customers in planning jointly for environmental management and environmental solutions.

Finally, there are articles that include both low and high levels of interaction. Most of these articles do not distinguish between the effects of the different levels of interactions. For example, Sancha et al. (2012) focus on social supplier development practices, which are defined as activities undertaken by a buying firm to improve a supplier's social performance which includes the assessment of suppliers' social activities, the provision of training to suppliers or direct work with suppliers on social issues. However, some articles do measure the differences between the effects of low and high level interactions. For, example Lee & Klassen (2008) indicate that monitoring is a driver of a supplier's environmental capabilities, while support (direct interaction of the buyer with its suppliers) is an enabler.

To conclude, buyers and suppliers can have an environmental or social relationship with low-levels of interaction, high-levels of interaction or both levels of interaction. These different levels of interaction might have a distinct effect on performance outcomes, which was indicated by the articles that distinguish between the effects of low- and high-level interactions.

Effects of interactions. As indicated in the previous section different levels of interaction can have a different impact on performance outcomes. This is in line with the relational view, which suggests that only those relationships that move beyond arms-length market relationships will lead to the achievement of relational rents. Therefore, interactions or relationships should involve relation-specific assets, inter-firm knowledge-sharing behaviors, complementary resource endowments and effective governance systems. It seems that also in the relationships between buyers and suppliers on environmental and social issues, several characteristics are important in order to generate relational rents.

Interactions between buyers and suppliers on environmental or social issues involve several important characteristics that lead to the generation of positive outcomes. First of all,

multiple articles expect that relational rents will be generated when interactions involve the exchange of valuable knowledge as knowledge integration is an important resource of performance and competitive advantage (Albino et al., 2012; Blome et al., 2014; Cheng, 2011; Gallear et al., 2012; Vachon & Klassen, 2008). Furthermore, some articles focus on the importance of the exchange of market knowledge from the supplier to the buyer, which improves the innovation of green products (Geffen & Rothenberg, 2008; Lee et al., 2015; Lee & Kim, 2011). This highlights the importance of involving suppliers in green or social processes, which can be defined as the extent to which suppliers are a primary source of product and process innovation in bringing environmental or social improvement (Geffen & Rothenberg, 2008). Thirdly, some articles (Lee et al., 2015; Simpson et al., 2007) indicate that buyer-supplier relationships should include investments in relation-specific assets in order to generate positive outcomes, for example dedicating time and resources or setting future environmental/social goals. Furthermore, interactions that involve a healthy relationship between buyers and suppliers will increase positive outcomes (Gallear et al., 2012; Testa & Iraldo, 2010). Finally, multiple articles propose that relationships that involve trust will result in positive outcomes due to improved collaboration (Simpson & Power, 2005; Touboulic & Walker, 2015), increased knowledge sharing (Geffen & Rothenberg, 2000; Cheng et al., 2008; Grimm et al., 2014), reduced costs of evaluation (Sancha et al., 2012) and increased relation-specific investments (Simpson et al., 2007).

These arguments might lead us to expect that buyer-supplier interactions that involve knowledge sharing, supplier involvement, investments in relation-specific assets, good buyer-supplier relations and trust will move relationships beyond arm's-length market transactions and generate relational rents. However, relationships that do not involve these features will not create relational rents as they are easily imitated and not rare (Dyer & Singh, 1998). Simpson and Power (2005) even indicate that an arm's-length customer-supplier relationship can negatively impact the environmental management practices of the supplier. Lee & Klassen (2008) also highlight the importance of moving interactions beyond arm's length relationships, by indicating that failure of environmental programs is much higher in

the case of low-level interactions and arm's length relationships with suppliers. Also supplier involvement seems to be highly important, as Geffen and Rothenberg (2000) found that the higher the involvement of the supplier, the higher the performance outcomes. Furthermore, Ramanathan et al. (2014) indicate that only a high 'futuristic' level collaboration, which involves extensive information sharing, is able to result in significant improvements for both buyers and suppliers. Finally, Blome et al. (2014) found that firms which have higher levels of collaboration and thus higher relational investments generate higher levels of relational rents.

The arm's length relationships that do not lead to relational rents might correspond with low-level environmental or social interactions like assessment, while interactions that move beyond arm's length relationships correspond to high-level environmental or social interactions. Therefore, high-level interactions on social and environmental issues that involve high levels of collaboration are important for achieving relational rents. These collaborative interactions are also the ones that often involve substantial knowledge-sharing behaviors, and the development and integration of resources (Vachon & Klassen, 2008). On the other hand, several articles argue that low-level interactions like environmental/social assessment and monitoring are more arm's length approaches and do not involve these characteristics (Lee & Klassen, 2008). Therefore, low-level environmental or social interactions, that do not involve those characteristics necessary to make a relationship valuable, inimitable, rare and non-substitutable, will not lead to the generation of relational rents.

However, low-level social/environmental interactions are not unnecessary as they provide support to high-level interactions. It is shown that supplier environmental assessment does have an indirect effect on performance (Simpson & Power, 2005). Furthermore, collaboration with suppliers can be less effective when suppliers' environmental performance is not monitored and assessed (Testa & Iraldo, 2010). This is due to the fact that assessment, feedback and incentives provide important knowledge to both the buyer and the supplier. Therefore, environmental monitoring enables collaboration (Lee &

Klassen, 2008) and indirectly leads to increased relational rents. This has also been indicated in research on general buyer-supplier interactions, which proposes that activities of low involvement are pre-requisites or enablers of successful supplier development programs (Modi & Mabert, 2007).

This section has shown that in environmental or social buyer-supplier relationships both high and low levels of interaction can occur, in which high level interactions can directly lead to relational rents as they involve important relational characteristics, while low level interactions only indirectly lead to relational rents. Therefore, we might expect that the articles that adopt low-level interactions do not find any effect on relational rents, articles that adopt high-level interaction find positive effects on relational rents and articles that adopt both levels of interaction find the highest effects on relational rents. It is interesting to note that most articles mention relationships that involve interactions from the buyer to the supplier, e.g. the buyer provides assessment, knowledge or resources to the supplier. Only some articles provide evidence of a two way relationship in which the supplier also provides knowledge to the buyer. This type of interaction is only achieved in high-level relationships where the buyer and the supplier work jointly on environmental or social projects and seems to be highly important for the generation of relational rents.

Interactions and mixed results. As we have seen different levels of interactions will lead to different outcomes regarding the acquisition of relational rents. Do these expectations return in the results of the articles and therefore explain the mixed results?

First of all, it does explain why Testa and Iraldo (2010) did not find a positive effect on business and competitive performance, as expected by the relational view. The authors adopt reasoning from the relational view but incorrectly apply the concept of interaction as only low-level interaction is measured, which according to the relational view will not lead to the generation of relational rents. Secondly, Simpson et al. (2007) only find an indirect effect of interactions. This is in line with the arguments presented above as the authors focus on low-level interactions and argue that this will lead to performance outcomes only when the characteristics of high-level interactions are present.

However, still other mixed findings remain unexplained. Most importantly, while focusing on high-level interactions or both low- and high-level interactions, some articles still find a negative effect on costs and economic performance of the firm (Sancha et al., 2015; Vachon & Klassen, 2008). Furthermore, we expected that articles adopting both low- and high- levels of interaction infer more performance outcomes than articles adopting only high-level interactions. This effect is not found in the researched articles, which might be caused by the differences in performance outcomes the articles focus on.

Moderating effects

We have seen in the previous sections that an inappropriate adoption of the concepts of the relational view, relational rents and inter-firm linkages, does explain some but not all of the contrasting findings. This section will review moderating and mediating variables specified in the articles. These effects are not included in the relational view and therefore we have to look beyond the scope of this theory to make accurate predictions about the outcomes of environmental/social supplier-buyer relationships. Previous research on general buyer-supplier interactions has already identified several variables that moderate the influence of supplier development activities on the achievement of the supplier and the customer (Arroyo-Lopez & de Boer, 2012). I expect that also in the buyer-supplier environmental or social relationship several moderators will be apparent. While some articles acknowledge these factors more as moderators others have acknowledged them as mediators. It seems to be highly complicated to distinguish between effects that are already included in the buyer-supplier interaction, effects that moderate the relationship and effects that mediate it.

This article will focus on the moderating effects, as the mediating effects mentioned in the articles are very diverse and not generalizable. Furthermore, moderators have the potential to explain why similar relationships lead in some cases to positive outcomes while in other cases they do not. The existence of moderators seems to be more appropriate for explaining the mixed findings of the articles. In the supplier-buyer relationship on sustainability issues several moderators might be important like distinct characteristics of the partners or the relationship. This section will highlight two important moderators which are

identified in the reviewed articles and have the ability to explain the mixed results.

One important variable that might moderate the relationship between interactions on environmental or social issues and relational rents is the duration of the relationship. This factor explains why several articles indicate that interactions negatively affect costs and economic performance of the buying firm. At first, green supply chain management might be costly for buying firms as it involves certain investments like monitoring suppliers' environmental performance and providing training to suppliers (Testa & Iraldo, 2010). However, these costs may decrease due to reduced evaluative and control costs in long-term relationships (Sancha et al., 2015). Furthermore, the existence of a long-term relationship can lead to more initiative taking by the supplier, resulting in higher sustainable performance (Grimm et al., 2014). Both Sancha et al. (2015) and Vachon and Klassen (2008) take a short-term perspective and indicate a negative effect on economic performance and costs, however in the long-run this effect might become positive. Therefore, the duration of the relationship is an important moderator.

Another factor that might moderate the relationship between interactions and the achievement of relational rents is organizational learning or absorptive capacity. This refers to the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends (Cohen & Levinthal, 1990). Carter (2005) argues that collaboration will only lead to improvements in supplier performance if both parties are able to learn from it. This means that interactions that involve extensive knowledge sharing, might still not lead to increased performance when the parties are not able to learn from each other's knowledge. Furthermore, greater absorptive capacity helps organizations to cultivate and transform knowledge acquired in the supply chain more effectively (Vachon & Klassen, 2008). Therefore, absorptive capacity moderates the relationship between interactions and relational rents.

Other possible moderating variables might be goal congruence (Pedersen & Andersen, 2006) or similar organizational cultures. However, the investigated articles do not mention

the existence of such moderating variables and the full analysis of all possible moderators is beyond the scope of this article. Future research can explore the existence of these factors.

Developing an Integrated Model of Buyer-Supplier Interactions Regarding Sustainability and Relational Rents

Integrating the previous findings can lead to the establishment of an integrated model of the effect of buyer-supplier interactions regarding sustainability on the generation of relational rents. We have seen that interactions between buyers and suppliers on environmental issues can lead to the development of substantial relational rents, in which only high level interactions will directly lead to relational rents, while low-level interactions enable high level interactions and indirectly lead to relational rents. These relational rents will exist of both gains for the supplier and for the buyer in the form of improvements in environmental or social performance, operational performance, economic performance or competitive advantage. Finally, several factors like the duration of the relationship and the absorptive capacity of the partners will moderate the relationship. This results in the following integrated model:

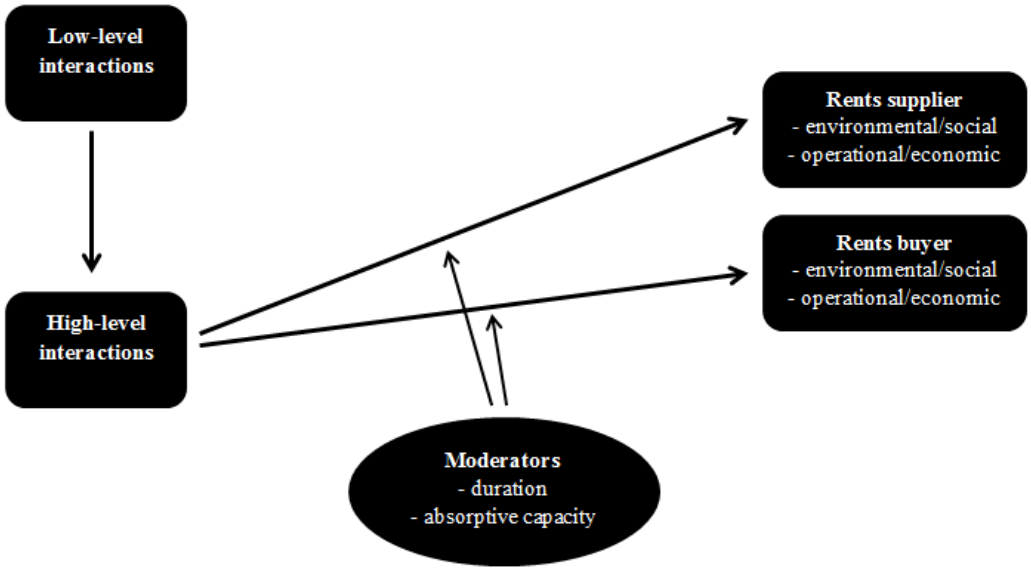

FIGURE 1. An integrated model of buyer-supplier interactions regarding sustainability

It has to be noted that in this model possible mediating effects are excluded, while these effects might be important. For example, Sancha et al. (2015) indicate that supplier development practices lead to an increase in a suppliers' social performance which in turn lead to an increase in operational performance of the buying firm. Another example is the paper of Blome et al. (2014), which indicates that supply chain collaboration leads to increased sustainable performance through sustainable production. While these mediating effects can offer interesting insights, the articles provide significantly different factors which cannot be compared. Therefore, they are not included in this integrated model.

CONCLUSION

This article reviewed the existing literature that adopts the relational view to investigate buyer-supplier interactions regarding sustainability. My aim was to understand the mixed results identified in these articles by defining concepts, definitions and research methods. In section 1 I defined the relational view, in section 2 I defined my methods, in section 3 I provided the general findings, in section 4 I reviewed the adoption of the concepts relational rents and interfirm linkages, in section 5 I investigated the possibility for moderators and in section 6 I proposed an integrated model of the effects of buyer-supplier interactions regarding sustainability on the generation of relational rents. This paper led to the following conclusions.

The concepts of relational view have been explicitly or implicitly adopted by multiple papers in order to explain the outcomes of buyer-supplier interactions on environmental or social issues. In general, these interactions lead to improvements in the environmental or social performance of both the buyer and the supplier. Other gains from the interaction are uncertain and mixed results have been found. This might be caused by the fact that several articles inappropriately adopt the concepts relational rents and inter-firm linkages. When adopting the arguments of the relational view, researchers have to acknowledge that relational rents are gains for both the buyer and the supplier and that inter-firm linkages can

only result in relational rents when they involve high-level interactions. Adopting these rules might improve the predictions of the existing literature and confirm the ideas of the relational view. However, even when authors implement these ideas, the relational view does not offer optimal predictions. Therefore, it is necessary to move beyond the theory and investigate the effect of moderators and mediators.

We can conclude that the relational view offers important insights into the relationship between buyers and suppliers on environmental and social issues. The theory helps us to indicate which interactions will be more successful than others in generating positive outcomes. Furthermore, it offers important managerial implications as managers should make sure that their environmental or social relationships with suppliers are based on high-level interactions including practices like knowledge sharing and effective governance. These high-level relationships should not only enable a one-way transfer of knowledge and resources from the buyer to the supplier but also from the supplier to the buyer. This article indicates that gains from buyer-supplier interactions are not derived by practices like corrective actions in the case of poor environmental performance of suppliers but from close relationships with and mutual learning from suppliers on environmental and social issues. Furthermore, low-level interactions should be adopted in order to enable these high-level interactions.

Despite its major contributions, the relational view is not able to explain all the mixed findings in previous research. Therefore, it is necessary to move beyond this theory and involve other factors like the influence of moderating variables. Only then, the full extent of differences in the effects of buyer-supplier interactions on environmental and social issues can be understood as even high-level interactions might not always lead to the generation of relational rents.

Directions for future research

Another purpose of this paper was to identify gaps in the existing literature and provide directions for future research. This section will provide directions for future research that are able to address the existing gaps in the literature.

First of all, it should be noted that articles offering proof for the proposed integrated model are required. Therefore, articles should distinguish between the effects of low- and high-level interactions. Current research only investigates this effect in case studies, however quantitative analysis is required in order to improve our understanding. Furthermore, these articles should include multiple performance indicators for both the buyer and the supplier. Finally, articles should focus on the effect of moderating variables.

Secondly, a lot of research on buyer-supplier interactions on social and environmental issues has remained a-theoretical, while the sound implementation of theories, like the relational view, can provide interesting insights. Also the adoption of other theories, individually or in combination with the relational view, might increase our understanding of the buyer-supplier relationship on environmental or social issues. For example, transaction costs theory might be incorporated in order to understand the effects of the costs of transactions and relationships. Interestingly, the relational view itself already adopts some aspects of transaction costs theory by arguing that effective governance can intensify relational rents by lowering transaction costs. Therefore, a broader inclusion of transaction costs theory might improve the predictions of the relational view. Also the inclusion of network theory could provide interesting insights in this topic. In the majority of the articles the relational view is adopted to investigate a dyadic relationship between one buyer and one supplier. However, interactions can take place between multiple parties in a supply chain. Network theory can assist in broadening the scope of the relational view. For example, Vurro et al. (2009) indicate that with a higher network density and a central position of the buying firm, collaboration will be more participative. The relational view of Dyer and Singh (1998) already seems to adopt some perspectives from network theory by arguing that the ability to identify potential complementarities is higher when firms have a more central position in their network and more frequently interact with their partners. Therefore, combining the relational view with network theory might be a fruitful way to explain why corporate approaches to supply chain management vary and lead to distinctive results and competitive advantages for the whole supply chain.

Furthermore, combining different theoretical views might also assist researchers in extending the effects of social/environmental buyer-supplier interactions on gains not only for one individually party, as done by most of the articles, but for multiple parties or even for the whole supply chain. For example, it was already indicated that collaboration-based interactions might not only result in an increased environmental/social performance of the supplier but also result in the supplier extending its sustainability practices to other supply chain partners. This might also increase our understanding on the division of gains from environmental or social interactions between buyers and suppliers. Therefore, future research could expand the scope of interactions and performance outcomes and enhancing the current perspective with the ideas of network theory.

Finally, adding multiple scopes and perspective to the existing literature could improve our understanding about environmental and social buyer-supplier interactions. As can be seen in table 1, most of the reviewed articles take a perspective from the buyer's point of view. This is also apparent in the types of performance outcomes indicated by the articles as only one article addresses the operational performance of the supplier. Therefore, it is still unclear how supplier's economic performance is affected. Future research should therefore explore the relationship from the perspective of the supplier. Furthermore, as can be seen in Appendix 1, most of the articles involve environmental issues, excluding social issues. It is interesting to see if performance effects are similar for social issues. It might be that social issues require relationships that involve increased trust and knowledge sharing in order to deal with complicated norms and values.

Limitations

Despite its contributions, this article has several limitations. First of all, it is subject to the limitations of the reviewed articles and therefore includes only limited scopes and perspectives. Furthermore, the article covers only a small sample of 20 articles which are highly relevant for answering the research questions. Therefore, other perspectives might be excluded. Furthermore, potential articles might have been excluded from this research, due to the choice of keywords and analyzed literature reviews. Finally, this article only focused on

moderating effects, which led to the exclusion other possible effects with a significant influence. Mediating effects were difficult to analyze due to the limited articles reviewed in this paper, this might be improved in future research.

REFERENCES

Albino, V., Dangelico, R. M. & Pontrandolfo, P. 2012. Do inter-organizational collaborations enhance a firm's environmental performance? A study of the largest US companies. Journal of Cleaner Production 37: 304-315.

Arroyo-Lopez, P. & de Boer, E.H.L. 2012. How do supplier development programs affect suppliers? Business Process Management Journal 18(4): 680-707.

Blome, C., Paulraj, A. & Schuetz, K. 2014. Supply chain collaboration and sustainability: a profile deviation analysis. International Journal of Operations & Production Management 34(5): 639-663.

Canning, L. & Lloyd, S. 2001. Managing the environmental adaptation process in supplier-customer relationships. Business Strategy and the Environment 10: 225-237.

Carter, C.R. 2005. Purchasing social responsibility and firm performance: the key mediating roles of organizational learning and supplier performance. International Journal of Physical Distribution & Logistics Management 35(3): 177-194.

Chen, I.J. & Paulraj, A. 2004. Towards a theory of supply chain management: the constructs and measurements. Journal of Operations Management 22: 119-150.

Cheng, J. 2011. Inter-organizational relationships and knowledge sharing in green supply chains – moderating by relational benefits and guanxi. Transportation Research Part E 47: 837-849

Cheng, J. Yeh, C. & Tu, C. 2008. Trust and knowledge sharing in green supply chains. Supply Chain Management: An International Journal 13(4): 283-295.

Cohen, W.M. & Levinthal, D.A. 1990. Absorptive capacity: a new perspective on learning and innovation. Administrative Science Quarterly 35(1): 128-152.

Dyer, J.H. & Singh, H. 1998. The relational view: cooperative strategy and sources of inter-organizational competitive advantage. Academy of Management Review 23(4): 660-679.

Gallear, D., Ghobadian, A. & Chen, W. 2012. Corporate responsibility, supply chain partnership and performance: an empirical examination. International Journal of Production Economics 140: 83-91.

Geffen, C.A. & Rothenberg, S. 2000. Suppliers and environmental innovation: the automotive paint process. Journal of Operations & Production Management 20(2): 166-186.

Giminez, C. & Tachizawa, E. 2012. Extending sustainability to suppliers: a systematic literature review. Supply Chain Management: An International Journal 17(5): 531-543.

Grimm, J.H., Hofstetter, J.S. & Sarkis, J. 2014. Critical factors for sub-supplier management: A sustainable food supply chains perspective. International Journal of Production Economics 152: 159-173.

Lee, S. 2008. Drivers for the participation of small and medium-sized suppliers in green supply chain initiatives. Supply Chain Management: An International Journal 13(3): 185-198.

Lee, K. & Kim, J. 2011. Integrating suppliers into green product innovation development: an empirical case study in the semiconductor industry. Business Strategy and the Environment 20: 527-538.

Lee, S. & Klassen, R.D. 2008. Drivers and enablers that foster environmental management capabilities in small and medium sized supplier in supply chains. Production and Operations Management 17(6): 573-586.

Lee, V., Ooi, K., Chong, A.Y. & Lin, B. 2015. A structural analysis of greening the supplier, environmental performance and competitive advantage. Production Planning & Control 26(2): 116-130.

Modi, S.B. & Mabert, V.A. 2007. Supplier development: improving supplier performance through knowledge transfer. Journal of Operations Management 25(1): 42-64.

Pagell, M. & Wu, Z. 2009. Building a more complete theory of sustainable supply chain management using case studies of 10 exemplars. Journal of Supply Chain Management 45(2): 37-56.

Pedersen, E.R. & Andersen, M. 2006. Safeguarding corporate social responsibility in global supply chains: how codes of conduct are managed in buyer-supplier relationships. Journal of Public Affairs 6(3): 228-240.

Ramanathan, U., Bentley, Y. & Pang, G. 2014. The role of collaboration in the UK green supply chains: an exploratory study of the perspectives of suppliers, logistics and retailers. Journal of Cleaner Production 70: 231-241.

Sancha, C., Gimenez, C., Sierra, V. & Kazeminia, A. 2015. Does implementing social supplier development practices pay off? Supply Chain Management: An International Journal 20(4): 389-403.

Sarkis, J., Zhu, Q. & Lai, K. 2011. An organizational theoretic review of green supply chain management literature. International Journal of Production Economics 130: 1-15.

Simpson, S. & Power, D. 2005. Use the supply chain relationship to develop lean and green suppliers. Supply Chain Management: An International Journal 10(1): 60-68.

Simpson, D., Power, D. & Samson, D. 2007. Greening the automotive supply chain: a relationship perspective. International Journal of Operations & Production Management 27(1): 28-48.

Testa, F. & Iraldo, F. 2010. Shadows and lights of GSCM: determinants and effects of these practices based on multi-national study. Journal of Cleaner Production 18: 953-962.

The Guardian (2014). Samsung supplier used child labour to meet high demand, report alleges. Accessed 18-03-2016. http://www.theguardian.com/technology/2014/jul/10/samsung-supplier-allegedly-used-child-labour

The Guardian (2016). Toxic chemicals in outdoor products of leading brands, Greenpeace study finds. Accessed 17-03-2016.

http://www.theguardian.com/business/2016/jan/26/greenpeace-finds-brands-like-north-face-using-toxic-chemicals-in-outdoor-products

Touboulic, A. & Walker, H. 2015. Love me, love me not: a nuances view on collaboration in sustainable supply chains. Journal of Purchasing & Supply Management 21: 178-191.

Vachon, S. & Klassen, R.D. 2008. Environmental management and manufacturing. The role of collaboration in the supply chain. International Journal of Production Economics 111: 299-315.

Vurro, C., Russo, A. & Perrini, F. 2009. Shaping sustainable value chains: network determinants of supply chain governance models. Journal of Business Ethics 90(4): 607-621.

Webster, J. & Watson, R.T. 2002. Analysing the Past to Prepare for the Future: Writing a Literature Review. MIS Quarterly 26(2): 13-24.

APPENDIX

Appendix A: Summary of the relevant papers addressing interactions between buyers and suppliers regarding environmental and/or social issues.

	Theory	Scope	Interaction	Perspective	Method (country)	Main findings
Geffen & Rothenberg (2000)	IM	E	Supplier-manufacturer relations	B	Case (US)	Closer supplier-manufacturer relations have a positive effect on environmental performance.
Canning & Lloyd (2001)	IM	E	Supplier-customer relationship for environmental change	B&S	Case (UK)	Reducing environmental impact beyond firm boundaries requires consideration of internal, external and relational factors.
Carter (2005)	IM + Relational view	E&S	Purchasing social responsibility	B	Survey (-)	There is no direct relationship between PSR and supplier performance, however this relationship is mediated by organizational learning
Simpson & Power (2005)	IM + TCT	E	Supply relationship	B&S	Case (Australia)	A relational supply relationship leads to better environmental management practices of the supplier, mediated by lean performance.
Simpson et al (2007)	IM + TCT	E	Environmental performance requirements	S 1st &2nd	Survey (Australia)	Environmental performance requirements only increase environmental commitment of the supplier when asset-specific investments are present.
Cheng et al. (2008)	IM	E	Inter-organizational knowledge sharing in green supply chains	B	Survey (Taiwan)	Trust increases inter-organizational knowledge sharing. This level of trust is influenced by participation, communication, and opportunistic behavior.
Lee & Klassen (2008)	IM	E	Buyer GSCM (monitoring, support)	B&S (SME)	Case (Korea)	Identifying drivers (monitoring, environmental championing) and enablers (support, external resources, monitoring) for suppliers' environmental capabilities.
Lee (2008)	IM	E	Buyer GSC practices	S (SME)	Survey (Korea)	Buyer GSC practices, government involvement and GSC readiness increase the willingness of the supplier to participate in GSC.
Vachon & Klassen (2008)	EX + NRBV	E	Environmental collaboration	B	Survey (North-America)	Environmental collaboration has a positive effect on quality, delivery, flexibility, and environmental performance and a negative effect on costs.
Testa & Iraldo (2010)	IM	E	GSCM buyer	B	Survey (multiple)	GSCM positively affects environmental performance; however there is no significantly influence on business and competitive performance.
Cheng (2011)	EX	E	Inter-organizational knowledge sharing in green supply chains	B	Survey (Taiwan)	Relational risk negatively affect knowledge sharing, however this is positively moderated by relational benefits and guanxi.
Lee & Kim (2011)	IM	E	Supplier involvement	B	Case (Korea)	Supplier involvement is important for green new product development.
Albino et al. (2012)	EX	E	Environmental collaboration	B	Survey (US)	Inter-organizational collaborations can be beneficial for a firm's environmental performance.
Gallear et al. (2012)	IM	S&E	Supply Chain partnership	B	Survey (UK)	Internal awareness and monitoring positive effect supply chain partnerships, while sharing best practices has a negative effect.
Blome et al. (2014)	EX	S&E	Sustainable supply chain collaboration	B	Survey (Germany)	Adherence to the ideal sustainable supply chain collaborative profile does not directly impact sustainable market performance but through sustainable production.
Grimm et al. (2014)	IM	S&E	SSCM	B	Field (Multiple)	The identification of 14 critical success factors for managing sub-suppliers.
Ramanathan et al. (2014)	IM	E	Supply chain collaboration	S	Case (India)	Futuristic collaboration reduces CO2 internally, upstream and downstream. Progressive collaboration reduces internal and distribution CO2. Preparatory reduces only internal CO2.
Lee et al. (2015)	IM	E	Greening the supplier	B	Survey (Malaysia)	Greening suppliers' positive effects environmental performance and competitive advantage. Partial mediation environmental performance.
Sancha et al. (2015)	EX	S	Social Supplier Development practices	B	Survey (Spain)	Supplier development practices positive influence suppliers' social performance and operational performance of the buying firm. However, they negatively affect the economic performance
Touboulic & Walker	EX	S	Supply chain collaboration	B	Case (UK)	Several relational characteristics support and a lack of these characteristics hinder the effectiveness of supply

(2015)	chain collaboration for SSC performance.

Notes: Ex = explicit, Im = implicit, S = Social, E = environmental, B = buying firm, S = supplier

Appendix B: Summary of the papers regarding independent, dependent, moderator and mediator variables

	Independent	**Dependent**	**Moderator**	**Mediator**	**Characteristics of the relationship**
Geffen & Rothenberg (2000)	- supplier-manufacturer relations on environmental innovation	- environmental performance B			*supplier involvement
Canning & Lloyd (2001)	-internal characteristics -inter-company characteristic	-environmental adaptation & performance			
Carter (2005)	-purchasing social responsibility	-supplier performance		-organizational learning	
Simpson & Power (2005)	-supply relationship	-Environmental management practice		-lean manufacturing	
Simpson et al (2007)	-environmental performance requirements	-environmental commitment S	Conditions in the existing relationship: -relationship-specific investment -contracts - assessment		
Cheng et al. (2008)	-relational characteristics	-inter-organizational knowledge sharing		-trust	
Lee & Klassen (2008)	-GSCM B -external resources -environmental championing S	-suppliers internal and external environmental capabilities			*knowledge sharing
Lee (2008)	-GSC practices B -government involvement -GSC readiness S	-willingness of GSC participation			
Vachon & Klassen (2008)	-environmental collaboration	- environmental performance B - manufacturing performance (cost, quality, delivery, flexibility) B			*knowledge sharing *supplier involvement *integration of external resources
Testa & Iraldo (2010)	-GSCM B	-environmental performance B -business performance/competitive performance B			
Cheng (2011)	-relational risk	-inter-organization knowledge sharing	-relational benefits -guanxi		
Lee & Kim (2011)	-supplier involvement	-green innovation			
Albino et al. (2012)	-environmental collaboration	-environmental performance			*knowledge sharing
Gallear et al. (2012)	-CR behavior: internal awareness, monitoring, share of best practices	- supply chain partnership			
Blome et al. (2014)	-deviation of ideal profile of collaboration	-sustainable production -sustainable performance -market performance		-sustainable production	*knowledge sharing
Grimm et al. (2014)	-SSCM B	-sub-supplier sustainability performance	Critical success factors: -focal firm -relationship		

		- partner -context		
Ramanathan et al. (2014)	-supply chain collaboration: preparatory, progressive, futuristic	-reduce CO_2 emission -business performance		*information sharing
Lee et al. (2015)	-greening the supplier	-competitive advantage	-environmental performance	*investment *supplier involvement
Sancha et al. (2015)	-supplier development practices	-social performance S -operational performance B -economic performance B	-social performance S	
Touboulic & Walker (2015)	-supply chain collaboration	- SSC performance		relational mechanisms - enablers - lack of enablers - barriers

Notes: B = buyer, S = supplier, * = indicated, not empirically examined

Appendix C. Different relational rents generated in buyer-supplier interactions specified in the articles

Relational rent	**Articles**
Environmental/social performance supplier	Simpson & Power (2005) Simpson et al. (2007) Lee & Klassen (2008) Lee (2008) Grimm et al. (2014) Ramanathan et al. (2014) Sancha et al. (2015) Touboulic & Walker (2015)
Environmental/social performance buyer	Geffen & Rothenberg (2000) Canning & Lloyd (2001) Vachon & Klassen (2008) Testa & Iraldo (2010) Lee & Kim (2011) Albino et al. (2012) Blome et al. (2014) Ramanathan et al. (2014) Lee et al. (2015)
Operational performance supplier	Carter (2005)
Operational performance buyer	Vachon & Klassen (2008) Sancha et al. (2015)
Economic performance buyer	Testa & Iraldo (2010) Sancha et al. (2015)
Market performance buyer	Blome et al. (2014)
Competitive advantage	Testa & Iraldo (2010) Lee et al. (2015)

Appendix D. Different levels of interaction specified in the articles

Level of interaction	**Article**	**Name of interaction**
Low-level	Testa & Iraldo (2010)	Green supply chain management
	Simpson et al. (2007)	Environmental performance requirements
High-level	Simpson & Power (2005)	Supply relationship
	Cheng et al. (2008)	Inter-organizational knowledge

		sharing in green supply chains
	Vachon & Klassen (2008)	Environmental collaboration
	Cheng (2011)	Inter-organizational knowledge sharing in green supply chains
	Lee & Kim (2011)	Supplier involvement
	Albino et al. (2012)	Environmental collaboration
Both levels (no distinction)	Carter (2005)	Purchasing social responsibility
	Lee (2008)	Green supply chain practices
	Blome et al. (2014)	Sustainable supply chain collaboration
	Grimm et al. (2014)	Sustainable supply chain management
	Lee at al. (2015)	Greening the supplier
	Sancha et al. (2015)	Social supplier development practices
Both levels (distinction)	Geffen & Rothenberg (2000)	Supplier-manufacturer relations
	Canning & Lloyd (2001)	Supplier-customer relationship for environmental change
	Lee & Klassen (2008)	Green supply chain management
	Gallear et al. (2012)	Supply chain partnership
	Ramanathan et al. (2014)	Supply chain collaboration
	Touboulic & Walker (2015)	Supply chain collaboration

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